

**MEETING AGENDA AND ACTION ITEMS**  
**Hanford Site Technology Coordination Group**  
**Management Council**

October 15, 1997  
EESB Snoqualmie Room  
8:30 a.m. to 12:30 p.m.

Purpose

- To endorse the FY98 Hanford Technology Needs
- To hear about FY98 Science Needs and any differences from last year's needs

Outcomes

- Agreement on FY98 Technology Needs
- Understanding of FY98 Science Needs

Agenda

Introduction/Safety/Continuous Performance Improvement

Updates

- Laser Purchase
- CETI
- Technology Update -- Low-Frequency Ground-Penetrating Radar Array
- Natural Attenuation Class

1998 Hanford Technology Needs Statements -- **VOTE**

- D&D Subgroup
- Mixed Waste Subgroup
- Subsurface Contaminant Subgroup
- Tanks Subgroup

C-Reactor Update and Announcement regarding Rocky Flats TDI

Future Agenda Items

Science Needs Presentation

- D&D Subgroup
- Tanks Subgroup
- Mixed Waste Subgroup
- Subsurface Contaminant Subgroup

## Wrap-Up

### Action Items

- Find out about cesium/strontium capsule metal corrosion resistance  
(Pete Knollmeyer)
- Get MWFA letter to all STCG Management Council members and Gerald Boyd  
(Joe Waring)
- Pick a better title for Tanks/SubCon need: "Data and Tools for Performance Assessments."  
(Kim Koegler / Paul Scott)
- Provide feedback on Science Needs being met by the EMSP awards  
(Loni Peurrung)
- Provide more specific details on Science Needs and get information to the principal investigators (Sue Garrett/Wayne Ross/Loni Peurrung/Shirley Rawson)
- Get information on EMSL Seminar Series to the Management Council  
(Rod Quinn)

## **HANFORD SITE TECHNOLOGY COORDINATION GROUP MANAGEMENT COUNCIL MEETING MINUTES**

October 15, 1997  
EESB, Snoqualmie Room  
8:30 a.m. to 12:30 p.m.

### **INTRODUCTION/SAFETY/CONTINUOUS PERFORMANCE IMPROVEMENT**

Maureen Hunemuller opened the meeting, and introductions were made.

A safety topic was provided by Tom Anderson. People are getting ready to put up Christmas lights and getting their ladders out. There is a safe way to use ladders. For best stability, the angle of the ladder should be such that the distance out from the wall is 1/4 the height of the ladder. The ladder really should be tied off at the top, especially if you're going up on the roof. There should be three rungs above the roof. Don't have your arms filled as you ascend. Use a drop line to pull items up after you are up there.

Dave Biancosino agreed and commented that a friend of his was recently trimming a large hedge. He didn't have the ladder set right, and the ladder started to fall. He threw the hedge trimmer one way and fell the other way and broke his leg. He should have had the ladder tied down.

It was announced that Gerald Boyd would not be able to meet with the STCG Management Council during the afternoon. The HAB is meeting with Gerald on October 16, and the STCG has 1.5 hours blocked off with him for a question-and-answer session after that. It will be in the Federal Building, Room 251, 10:00-11:30 a.m.

Dave presented the purpose of the meeting and expected outcomes. He asked the group if it was acceptable to delete "Outcomes" from now on, since they are usually the same as the purpose. In an informal show of hands, the group approved. Dave then reviewed the agenda.

### **UPDATES**

#### **Laser Purchase**

Shannon Saget provided an update on the laser cutting demonstration, which was initiated in August 1995. Babcock & Wilcox (B&W) took over management of the 324 Building in September 1996. The cold demo went well, but the hot test was not completed. However, dose testing was done to see how the fiber optics would hold up. B&W decided to purchase the laser. Results of the dose testing should be available in November and B&W will then make a decision on how to use the laser.

## CETI

Norm Olson gave an update on the status of the Clean Energy Technologies, Inc. (CETI) project. CETI worked with PNNL on transmutation of uranium and thorium, using gamma scanning to try to understand what was happening. The testing is done, and the results are now being analyzed. Next month Norm will be able to provide some results.

Norm suggested that an appropriate CPI topic would be to keep an open mind.

## TECHNOLOGY UPDATE -- Low-Frequency Ground-Penetrating Radar Array (LEMA)

John April (CH2M-Hill) presented a technology update on LEMA. This is a PNNL technology using ground-penetrating radar (GPR). The technology demonstration in the 300 Area is a proof-of-principle test only. A single-channel system (one antenna) was used. For further development, a multi-channel system will be used.

The laboratory test consisted of a sandbox of fine-grain sand, 1-meter deep. Hollow metal objects were buried. Fairly discrete images of the buried objects were able to be seen in the sandbox. The next step was to go out in the field in an area north of PNNL. Objects were buried; standard GPR was used and the results were compared against the single-channel system. With standard GPR, some imaging was seen. Images from the PNNL test pit using the single-channel system showed more enhanced objects.

They then went to Little Egypt, north of here, where a tank was buried in a meter of soil. Enhanced aerial and side views were taken. Half-inch metal plates were also buried, and images were seen. The technology can also be used for different materials such as Styrofoam or wood.

On November 10, they will be going to the 618-4 burial ground. When they uncover an object, they'll compare it to the images received and calibrate the instrument.

The benefit of the multi-channel system over standard GPR is that there is no need for a professional to interpret the images.

Tom Page asked if objects can be seen at the different depths. The answer was that GPR operates at 300 MHZ. The lower the frequency, the deeper you can go; however, the images wouldn't be as clear.

Pete Knollmeyer asked if there were commercial systems already in existence. The answer was that John was not sure. Algorithms have been developed at Utah State University.

Tom Engel asked if this technology is a significant enhancement over what's available commercially. We might be better off spending our time on something where there is no commercial system available.

### Natural Attenuation Class

Nancy Uziemblo provided information on a "Natural Attenuation of Chlorinated Solvents in Groundwater Seminar" to be held at the HAMMER Training and Education Center on November 13, 1997. There will also be a hands-on problem solving session on Friday, November 14 for 100 participants. Registration is due by November 7. There is a \$250 fee, which is waived for stakeholders and DOE participants. The seminar is sponsored by HAMMER and the Washington State Department of Ecology.

## TECHNOLOGY NEEDS STATEMENTS -- VOTE

### D&D --Wayne Green

Wayne stated that the feedback from the STCG will help FDH develop a better technology needs package next year.

Comments have been incorporated in the needs document. Some comments were run through the Subgroups and some were not.

### EM-60 (Needs #1-14)

The terminology was changed from "Privatization Potential" to "Outsourcing Potential".

Changes were made on some titles.

RL-DD01: "Stainless steel" was changed to "corrosion-resistant metal". "Either cesium chloride or strontium" was changed to "in the form of cesium chloride or strontium fluoride."

Dirk Dunning raised an issue about potential corrosion of the CsCl capsules. In the long term, we shouldn't rely on the cesium capsules having any long-term durability due to chloride stress corrosion. Wayne said that would be part of the science needs. Peter Knollmeyer took an action to get back to Dirk on this.

RL-DD06: "Cast iron" was changed to "concrete."

RL-DD011: A “show of hands” vote was taken to decide whether to change the wording of the following statement: “Current methods are not adequate to determine with reasonable certainty whether the liner is flawed.”

- Option A -- leave the statement as is
- Option B -- change it to: “There is low confidence in currently available methods to accurately determine the existence of flaws in the liner that might result in the leaking of cleaning...”

Option B won.

#### EM-40 (Needs #15-21) -- Sue Garrett

The Yakama Indian Nation comments were reviewed, and a decision was made to break out the needs down to the project.

RL-DD015: Added term “although very effective”; the need is for something that cleans very well and does it in a cost-effective manner.

RL-DD018: Added an explanation for “biota.”

RL-DD019: Stress monitor systems -- we need a better stress system to make sure people don’t get hurt; we deleted all references to saving money.

Shannon pointed out that a heat stress monitor was demonstrated at C-reactor, and wondered why it is still a need. Sue said that this may come off next year because of the results of that demonstration.

Dirk Dunning commented on the tanks closure meeting. Oak Ridge has taken a lot of technologies developed here at Hanford and implemented them at their site.

Cavanaugh Mims stated that Oak Ridge used several Hanford technologies and wondered why Hanford wasn’t using them.

#### D&D -- VOTE

yes	11
no	0

#### Mixed Waste -- Joe Waring

The only changes made from last month are minor editorial changes. One table was added to crosswalk last year’s table to this year’s.

Comments received by the Yakama Indian Nation were minor. Two comments were self-explanatory and didn’t require a change.

The letter to the MWFA regarding their poor response to our technology needs went out last week. A copy will be sent to Management Council members. The letter was supposed to be signed by Lloyd Piper, but it did not get on the agenda in time, so the Subgroup sent it out. Distribution of funds is inequitable in the MWFA. Jeff Frey noted that the letter was very appropriate. The Focus Area reviews are happening now; the Mixed Waste review is this week. This is a timely opportunity to influence their budget process.

Wayne Martin suggested that members go to the Gerald Boyd meeting tomorrow, express their comments, and hand him a copy of the letter sent to the MWFA.

#### VOTE -- Mixed Waste

yes	11
no	0

#### SubCon -- Kim Koegler

Changes were made to the needs package distributed last month as a result of:

- written comments from the Yakama Indian Nation and Ecology
- the STCG Subgroup meeting
- 200-Area project updates/corrections

Major changes:

- modified surface barrier need to better represent current program and future needs
- expanded detection/delineation of burial grounds need to include soil sites.

Other

- modified/clarified detection limit requirements in characterization needs
- added new stakeholder concerns and strengthened language in existing stakeholder concerns
- corrected background information and schedule for 200-Area programs.

#### VOTE -- SubCon

yes	11
no	0

## Tanks -- Paul Scott

The Tank Subgroup had not voted on one of the needs being sent out. Now it has been voted on and ranked as a medium-priority need.

- Changes since Sept 20 Subgroup meeting:
  - rewritten statement "service integrity testing of HLW Tanks and Piping" -- ranked "medium" by Subgroup
  - "half lives of Se-79 and Sn-126" will be a science need
- Comments received from DOE-RL and the Yakama Indian Nation will generate some clarifications and corrections to the needs statements.
- SubCon and Tanks will both forward the following barrier and vadose zone needs, with reference to the other Subgroup's needs package:
  - long-term testing of surface barrier
  - contaminant mobility beneath tank farms
  - data and tools for performance assessments.

Nancy Uziemblo questioned if it would be detrimental to put these in both SubCon and Tanks needs -- maybe they'll both say "let the other focus area fund it."

Dirk said that if we include them only under Tanks, they might not get attention. Wayne Martin also believes that "double counting" strengthens a need, since it shows up more than once in the tables and has interest from multiple end-users.

Tom Engel said there needs to be a better title for "Data and Tools for Performance Assessments."

## VOTE -- Tanks

Yes 11  
No 0

Nancy Uziemblo questioned the fact that she saw three cases this morning where technology deployments were not communicated to the programs to get the needs off the list. The STCG was supposed to prevent this. She expected to have better communications between groups. Shannon said that these are good comments--the reason for this group is to catch these things. The fact that we are catching them is good; now we need to follow through.

Jim Goodenough provided the following information:

- The C-Reactor Open House was highly successful. There were 20 vendors, guest speakers, and tours to B- and C-Reactors. 100 people registered, plus walk-ins.
- A technology has been handed off from Fernald -- a "cool suit" (undergarments for D&D workers to wear with cooling tubes).
- D&D submitted a lot of TDI proposals from Hanford, and is working with other sites. Rocky Flats and LANL have been co-sponsored on the glove box D&D technology and have invited Hanford to be a participant in this TDI task.

Katy Larson stated that Tom McClain is working with DOE to assign a PNNL communications person to attend the STCG Management Council meetings.

### FUTURE AGENDA ITEMS

- Endorsement of science needs
- FY97 demonstrations and deployments by FDH, BHI, and PNNL
- Laser Demo Case Study (B&W and PNNL)
- Subgroup reports on whether our needs are being met
  - barriers to meeting needs
  - demonstrations and deployments of new technologies
  - the valley of death
  - comparison of FY97 and FY98 needs lists--gaps vs. improvements
- Deployment Center Updates
- Update on status of Hanford TDI proposals
  - New TDI proposals (modify/improve old ones)
- Focus Area peer reviews
- Monthly updates on opportunities to see technology demonstrations
- Video of Hanford technologies used at Oak Ridge
- Video of Savannah River tank closure
- Pilot program for certification of technologies

## SCIENCE NEEDS

### D&D -- Sue Garrett

In FY97, five D&D science needs were identified.

- two were dropped as not being science needs
  - NDA/NDE Mapping and NaK passivation
- two were combined
  - contaminant and fixative binding
- three new needs were identified
  - cesium leak dispersion properties
  - effluent capture
  - photon assisted decontamination chemistry

The science needs are targeted to EM-50 (EMSP). Universities and science institutions are also encouraged to bid. Tom Engel pointed out that items are not explicit enough to be useful for a university or outside institution. They need much more detail to interest a broader audience. We should not use abbreviations that non-Hanford scientists don't use.

Joe Waring asked if we knew which needs were addressed by the funded EMSP projects. Dave Biancosino suggested that we crosswalk the funded projects with our needs. EMSP is linking their projects to identified needs, and the Subgroups should be given this information. However, even if projects are funded in response to specific needs, those needs will remain on the needs list until the EMSP projects are successfully completed. Lloyd Piper suggested that if we find a need that is close to the funded project, we should send it out to the principal investigators to see if they can target our need more closely.

It was requested that the science needs documents be more detailed.

It was announced that there will be an EMSL Seminar Series. Information on this series will be provided to the Management Council members.

### Tanks -- Loni Peurrung

Most needs were retained as is; nine new candidate needs were identified by PNNL and FDH which have not yet been fully reviewed. One need was eliminated since it was no longer timely. Some needs were returned to address changes in baseline, fix technology focus, editorial changes, etc.

The nine new needs are:

- hazardous organic species in IHLW
- contaminate mobility beneath tank farms
- transfer properties of secondary wastes
- solids yield and deagglomeration
- impact of additives, blending, and dilution
- tank integrity verification (conceptual science need)
- half-lives of Se-79 and Sn-126 (was a technology need)
- long-term performance of structures
- materials for long-term waste isolation

Need eliminated:

- chemical and physical assessment needs for waste characterization

Needs changed:

- rapid waste characterization tools
- advanced methods for achieving LLW volume minimization
- waste forms for secondary waste immobilization
- radionuclide distribution on solids
- tritium separations

Wayne Martin commented that the need to determine the half-lives of Se-79 and Sn-126 is very broad and he knows that people are working on this. He questioned why we need to put it on our list. Cathy Louie responded that this need came from the scientists themselves who don't know the answers. She feels it needs to be included on the list.

#### Mixed Waste -- Loni Peurrung for Wayne Ross

Two high-priority needs were retained; several new needs were added and prioritized; and one need was eliminated.

Needs added:

- effects of low radiation levels on the individual
- development of analytical techniques that don't require sampling
- decontamination methods for individuals
- mechanistic studies of encapsulation of radionuclides and hazardous components during microencapsulation or stabilization
- concepts/methods for the prevention of migration of radionuclides and hazardous components from buried radioactive wastes
- improved data on soils and contaminant distributions in the vadose zone (such as carbon tetrachloride) and modeling techniques for contaminant transport from waste disposal on the Hanford Site

Need eliminated:

- development of effluent-free cost-effective, organic destruction methods.

Comments/questions:

Tom Engel feels that the eliminated need is a good science need. He also asked for more specific details on the needs. Lloyd said that a better set of data should be consolidated to send out for comments, and asked Dave Biancosino to find out when the science needs are required by EMSP.

SubCon -- Kim Koegler for Shirley Rawson

The SubCon science needs were developed through a partnership between BHI and PNNL. An exchange was initiated between BHI and EMSL. The BHI project engineers met with the EMSL scientists to discuss the nature of the Site's environmental restoration problems and EMSL's capabilities to develop potential scientific solutions. This exchange will occur on a quarterly basis from now on. Accomplishments from the first exchange included:

- workshop statement of intent
- subgroups established
- information exchange
- discussion of gaps
- summary of needs
- final product -- SubCon science needs for FY98

Needs are categorized in four areas:

- detection and distribution of contaminants
  - three needs
- Transport of contaminants
  - four needs
- Remediation
  - five needs
- Monitoring of contaminants
  - three needs

**WRAP-UP**

Subgroups owe the Management Council their FY97 Annual Reports and their FY98 Work Plans. Both of these products will be on the agenda for the November meeting.

The next STCG Management Council meeting is scheduled for November 19, 8:30 a.m. to 12:30 p.m., in the EESB Snoqualmie Room.